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ABSTRACT

Jamaica (New York) High School's Computer-Assisted Bilingual/Bicultural Multi-Skills Project offers Haitian Creole/French-speaking and Spanish-speaking students a wide range of academic and vocationally related subjects in computerized and non-computerized instructional packages. Special emphasis is on achieving a measurable improvement in students' English as a second language (ESL) skills and a minimum passing grade in Spanish or Haitian Creole/French for 75 percent of the program's native speakers. The goal of the program is to help these students participate satisfactorily in the school's mainstream program and then go on to college or trade school or directly into the job market. Career planning activities and tutoring were included in the project. This report describes the program, personnel, and students; discusses evaluation findings; and offers conclusions and recommendations. Analysis of student achievement data indicate the following: (1) the program objective in English language development was surpassed; (2) the native language passing rate objective was surpassed; (3) program students achieved the same passing rate in content-area subjects as did mainstream students; and (4) program students met the proposed objective in the area of attendance but not in the area of suspension. (PS)

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O.E.A. Evaluation Section Report

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Grant Number: G00-842-5052

JAMAICA HIGH SCHOOL

Principal:
Eileen Petruzillo

COMPUTER-ASSISTED BILINGUAL/
BICULTURAL MULTI-SKILLS PROJECT

Project Director:
Bobette Beinhacker

1985-1986

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A SUMMARY OF THE REPORT

Jamaica High School's Computer-Assisted Bilingual/Bicultural Multi-Skills Project is in its second year of a three-year funding cycle. The project used computerized and non-computerized instruction to help 154 Haitian Creole/French- and Spanish-language native speakers -- most of them recent emigrants from rural areas -- to develop their English-language, native-language, and content-area skills. The goal is to help these students participate successfully in Jamaica High School's mainstream program, and then go on to college or trade school, or directly enter the job market.

Career planning activities and tutoring were important complements to the project's instructional component. In addition, the project sought to encourage parental understanding and involvement as a way of reinforcing student commitment. Curriculum development and staff development activities, involving project staff members and foreign language teachers, were equally vital aspects of the project.

Title VII funds paid for the project's administrative and support services staff. Teaching costs were met by tax levy and other funds. Fourteen members of the Jamaica High School staff devoted some part of their working day to project-related activities. The project is headed by the chairperson of the school's computer science department and is managed by a tax-levy assistant principal. In addition, the school principal and the chairperson of the foreign languages department are integrally involved in planning and overseeing the project.

Program objectives were assessed in English-language development (Criterion-Referenced English Syntax Test [CREST]); mastery of the native language (teacher-made tests); content-area subjects (teacher-made tests); and attendance and suspensions (program and school records). Analysis of student achievement data indicates that:

-- Students tested at Levels 1 and 2 of the CREST surpassed the program objective of mastering one CREST objective per month of instruction.

-- Overall, students met the objective of a 75 percent passing rate in native language arts courses both semesters.

-- In content-area subjects, program students achieved passing rates as high as those of mainstream students, thus meeting the proposed objective.

-- Program students met the proposed objective in the area of attendance but did not meet the objective in the area of suspension.

The following recommendations are made by the evaluation team for possible program improvement:

-- provide more training in E.S.L. teaching techniques for subject-area teachers of LEP students;

-- focus future staff development activities on alternative E.S.L. teaching strategies to improve students' verbal and reading skills, such as pattern drills and oral repetition; and

-- revise the program objective for students' suspension rates because it appears to be unrealistic.

ACKNOWLEDGEMENTS

The production of this report, as of all Office of Educational Assessment/Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Eulalia Cabrera has interpreted findings and has integrated material into reports. Arthur Lopatin has edited the reports following the O.E.A. style guide and has written report summaries. Finally, Joseph Rivera, Marcia Gilbert, Bruce Roach, Gladys Rosa, and Martin Zurla have worked intensively as word processors to produce and correct reports. Without their able and faithful participation, the unit could not have handled such a large volume of work and still produced quality evaluation reports.

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JAMAICA HIGH SCHOOL

COMPUTER-ASSISTED BILINGUAL/BICULTURAL

MULTI-SKILLS PROJECT

Location:	167-01 Gothic Drive Jamaica, New York 11432
Year of Operation:	1985-86 Second Year of Three-Year Funding Cycle
Target Languages:	Spanish, Haitian Creole/French
Number of Students:	154 students in grades nine through twelve
Principal:	Eileen Petruzillo
Project Director:	Bobette Beinhacker

I. PROGRAM DESCRIPTION AND PERSONNEL

Jamaica High School's Computer-Assisted Bilingual/Bicultural Multi-Skills Project is a pilot project in its second year of a three-year Title VII funding cycle. Its target population consists of Haitian Creole/French- and Spanish-speaking students, to whom it offers a wide range of academic and vocationally related subjects in computerized and non-computerized instructional packages.

Of the 154 limited English proficient (LEP) pupils enrolled in this project, none had previously been served by Title VII programs; few had ever seen a computer terminal firsthand; and all had to be trained to use the computer keyboard.

The original project proposal listed instructional, curriculum development, staff development, and affective goals that the project intended to achieve by the end of the third year. Two goals were especially emphasized: a measurable improvement in students' English as a

second language (E.S.L.) skills at all instructional levels, and a minimum passing grade in Spanish or Haitian Creole/French for 75 percent of the program's native speakers. Other project goals were to improve the young immigrant's self-image, introduce a career awareness component linking classwork with the job market, train school staff in the use of microcomputers for LEP pupils, and plan parent workshops on computer use.

Support services included professional guidance and counseling in English and in the two project languages; adult and peer tutoring; a special late-summer mini-orientation session for new LEP pupils (missing in 1985 but budgeted for August 1986), and informal counseling by classroom teachers.

In 1985-86, 14 staff members spent some part of the school day on project-related teaching, clerical, or supervisory duties. The project director, a licensed computer science teacher, is the chairperson of Jamaica High School's computer science program and has twenty years of experience. She devotes approximately two-fifths of her working day to administrative and supervisory tasks. She reports to the school principal and consults regularly with the chairman of the foreign language department. The latter, a 22-year employee of the school system, is especially proud of the program students' achievement in Spanish and French language classes, which places Jamaica among the top ranking public high schools in the Regents foreign-language exams.

Although the principal does not speak either French or Spanish, she has been careful to make the LEP students feel as comfortable at Jamaica as any of the 2,488 mainstream adolescents. She believes that the Title VII computer project is an instructional tool that will improve the self-

esteem of foreign-born youngsters, enhance their professional opportunities, and hasten their assimilation into the educational mainstream. As such, the project has her full support.

II. STUDENT CHARACTERISTICS

Of the 154 LEP students served by the program, the great majority were from Central and South America and the Caribbean (see Table 1). Sixty-two percent were native Spanish speakers, representing approximately 16 percent of the 580 Hispanic pupils enrolled at Jamaica. Thirty-eight percent of the program students spoke Haitian Creole/French as their native language.

Most of the program students were recent immigrants. More than 50 percent had received no more than one year of education in the United States. Most of these students migrated from rural areas where access to formal education was quite limited. A number, therefore, were overage by American standards, having been placed in the ninth or tenth grade regardless of their chronological age (see Table 2). Because so many lacked basic study skills and were unfamiliar with the rules of behavior for New York City public school students, a one-week orientation mini-session was approved for late August 1986, in which entering LEP pupils will be taught how to use public transportation and what to expect from their teachers and classmates.

TABLE 1

Number and Percent of Program Students
by Native Language and Country of Birth

Native Language	Country of Birth	Number	Percent
Haitian Creole/French	Haiti	59	38.3
Spanish	Hispanic Caribbean	23	14.9
	Central and South America	70	45.4
	Spain	1	*
	United States	1	*
TOTAL		154	100.0

*Less than one percent.

- Thirty-eight percent of the program students were born in Haiti.
- Forty-five percent of the students were from Central and South America, and 15 percent were from the Caribbean.

TABLE 2

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	Total
13	1	0	0	0	1
14	5	1	0	0	6
15	8	6	0	0	14
16	9	17	1	0	27
17	6	21	12	1	40
18	0	9	10	4	23
19	0	3	12	8	23
20	0	2	7	6	15
21	0	0	1	4	5
TOTAL	29	59	43	23	154
Overage Students					
Number	15	35	30	18	98
Percent	52	59	70	78	64

*Expected age range for grade.

- Sixty-four percent of the program students were overage for their grade placement.
- Grade nine had the lowest percentage (52 percent) of overage students, whereas grade twelve had the highest (78 percent).

III. FINDINGS

All of the yearly project goals and long-range objectives had been met by June 1986. All the computer terminals are installed and in regular use. The first floor computer resource room is inadequate for instructional and aesthetic reasons, but plans are being made to move the equipment into a larger space next year, once the necessary electrical work has been completed. Ways of making the room more comfortable for students and staff are being reviewed by the principal and the project director.

ENGLISH AS A SECOND LANGUAGE

-- As a result of participating in the project, students enrolled in levels 1 and 2 of the E.S.L. sequence will master an average of 1.0 objectives per 20 days of treatment.

A total of nine E.S.L. classes and eight E.S.L. labs were taught in 1985-86. One hundred and forty-three students enrolled in two level 1 classes, three level 2 classes, and four level 3 classes; 118 of these students were registered in the corresponding E.S.L. labs.

On a bitterly cold day, 11 students of a total enrollment of 15 were present in an E.S.L. class observed by a member of the evaluation team. On each student's desk was a vocabulary sheet listing the abbreviations found in classified advertisements, together with the words most commonly associated with computer use. The introduction of job-hunting terminology, such as "letter of reference," gave the lesson a utilitarian aspect. Approximately half the students were involved in oral exercises.

In a level 1 E.S.L. language lab, 12 pupils were gathered in the computer resource room, under the supervision of a French and a Spanish teacher. Instructions and board work were almost entirely in French and

Spanish, with several students seated in front of computer terminals and the rest completing assignments around a larger table. They spoke to the two language teachers in French or Spanish, but used English to address the monolingual computer assistant, suggesting that insofar as computer operation was concerned, English was the lingua franca. One of the teachers estimated that in the resource center, the proportion of native-language to English-language usage was about 60 percent to 40 percent.

The third E.S.L. class that was visited used more conventional teaching techniques to introduce the grammatical distinction between the superlative and the comparative. Twenty-three students out of a total enrollment of 26 were present. The teacher began the lesson by asking the class to compare Eddie with a picture of a he-man: "Who is stronger, Eddie or he-man?" "Eddie is stronger than he-man," one student answered. The teacher then asked, "What did we do to make the comparison?" When no one answered, the teacher said, "We added 'er' as a suffix." Then a student asked, "Can I say 'gooder'?" The teacher replied, "Never. That's one of the irregular adjectives. Write in your notebook 'the comparative of good is better'." The best feature of this lesson was the instructor's skill in introducing an abstract grammatical rule within a recognizable classroom context.

In an E.S.L. level 1 class, 15 students were studying the story of Cinderella. The instructor started by asking the class if they liked stories. "In this story," she said, "there is a little girl, Cinderella, her stepmother, and her stepsisters. Do you know what a stepmother is?" Each sentence was repeated at least two times, and the teacher used picture cut-outs to illustrate kinship relationships. The students had trouble

understanding what a "mean" person is and what it means to be sad. The teacher wrote portions of the dialogue on the board and asked students to read it. She also called on individual students who did not volunteer, and asked students to tell the class what Cinderella's name was in their native language.

Student Achievement in E.S.L.

The assessment instrument used to evaluate the objective in this area was the Criterion Referenced English Syntax Test (CREST)*. The CREST was administered at the beginning and end of each semester. A mastery score to indicate gains was computed for each student by calculating the difference between pretest and posttest. The number of months of instruction between testings was computed for each student by multiplying the number of months between testings by the student's attendance rate. The number of skills mastered per month were calculated by dividing the mean mastery by the mean number of months of instruction between testings.

Table 3 presents the test results for students who were pretested and posttested with the same level. Of the students who were reported to be taking E.S.L. classes (levels 1 and 2), complete data were available for 85 percent in the fall and 81 percent in the spring.

*The Criterion Referenced English Syntax Test (CREST) was developed by the Board of Education of the City of New York to measure mastery of instructional objectives of the E.S.L. curricula, and thus was constructed to maximize content validity. The test contains four items per curricular objective, and mastery of an objective is achieved when three of these items are answered correctly. The test measures mastery of 25 objectives at Levels 1 and 2, and 15 objectives at Level 3. The Kuder-Richardson Reliability Estimates for pretest and posttest administrations of the three levels of the CREST are:

Level 1 -- pretest (.91)/posttest (.96)
Level 2 -- pretest (.94)/posttest (.95)
Level 3 -- pretest (.91)/posttest (.91).

Examination of Table 3 reveals that students tested at Levels 1 and 2 of the CREST surpassed the program objective of mastering one CREST objective per month of instruction both semesters. The program objective did not involve students tested at Level 3. However, these students also achieved a mean mastery of about one CREST objective per month.

TABLE 3

Results of the Criterion Referenced English Syntax Test

Test Level	Number of Students	PRETEST Mean	PRETEST S.D.	POSTTEST Mean	POSTTEST S.D.	MASTERY* Mean	MASTERY* S.D.	Mean Mastery Per Month
				FALL				
1	31	7.6	5.7	13.7	6.3	6.1	4.1	2.9
2	35	12.7	6.0	16.7	5.5	4.0	2.6	1.8
3	52	9.3	3.3	12.3	2.6	3.0	2.3	1.3
TOTAL	118	9.9	5.2	14.0	5.0	4.4	3.2	1.8
				SPRING				
1	15	10.3	6.0	15.1	5.9	4.8	2.5	1.9
2	37	12.0	6.5	17.0	6.0	5.0	2.5	2.0
3	50	9.8	3.4	12.0	3.0	2.2	1.8	0.9
TOTAL	102	10.7	5.2	14.3	5.2	3.6	2.6	1.4

*Posttest minus pretest.

- The program objective was achieved by students tested at Levels 1 and 2 who mastered more than one CREST objective per month of instruction.
- Students tested at Level 3 also mastered more than one CREST objective per month for the year.

NATIVE LANGUAGE ARTS (N.L.A.)

-- As a result of participating in the project, at least 75 percent of the students will score at or above the 65 percent passing criterion in native language arts classes (Spanish or Haitian Creole/French) each semester/year.

In 1985-86, four classes of N.L.A. Spanish and two classes of French for Haitian Creole speakers (Haitian Creole/French) were scheduled over the two semesters.

In one N.L.A. Spanish class, the teacher was leading 25 students (of a total class register of 31) through a vocabulary lesson taught entirely in the native language. The instructor, in his fourth year of public school teaching, asked the questions; the students raised their hands to be called upon. Ten students who had written their answers on the board read their own sentences aloud, making the necessary corrections in their notebook after being called upon. The outstanding feature of the class was the teacher's interweaving of a structured lesson plan with an informal teaching style.

N.L.A. Haitian Creole/French classes have one advantage over their Spanish-language counterparts: they are much smaller. In one of the classes observed by a member of the evaluation team, 18 young Haitians were studying a text entitled L'Inutilité des Voyages. The class contained one new student out of 21 on the class register. The instructor asked if she had her textbook yet, a welcoming gesture to make the youngster feel at ease and a way to test her verbal fluency. The instructor's classroom methodology was similar to that of the previous teacher: questions were answered orally and then put in written form by the students themselves, and the instructor's classroom management was excellent.

Student Achievement in Native Language Arts

Passing rates for native language arts courses are reported in Table 4. Examination of the table shows that overall, the program objective of a 75 percent passing rate was achieved both semesters. Spanish-speaking students surpassed the objective criterion both semesters, whereas Haitian Creole-speaking students did so only in the fall.

TABLE 4

Passing Rates in Native Language Arts Courses

	FALL		SPRING		TOTAL
	Number of Students	Percent Passing	Number of Students	Percent Passing	Overall Passing Rate
Haitian Creole/French	45	82.2	41	63.4	77.8
Spanish	71	78.9	47	93.6	84.7
TOTAL		80.2		79.5	79.9

- Overall, students met the objective of a 75 percent passing rate in native language arts courses both semesters and at the end of the year.
- Spanish-speaking students met the objective both semesters, Haitian Creole/French speakers did so only in the fall.

CONTENT-AREA SUBJECTS AND SPECIALIZED COURSES

-- As a result of participating in the project, the percentage of students at or above the 65 percent passing criterion in substantive subjects will be as high as that of the mainstream.

In the spring term two classes in E.S.L. American Studies were offered. Forty students were enrolled including 26 program students. One class in bilingual (Spanish) math fundamentals consisted entirely of 32 project students. Another class in bilingual (Spanish) life science had 21 project students.

All 144 fall term LEP students were enrolled in one of six non-graded computer education classes held in the computer resource room. Twenty students took a non-graded E.S.L. keyboarding course, while another 31 were enrolled in E.S.L. business machines in the spring semester.

A visit was made to an American Studies E.S.L. class. Twenty-four students were learning how the American colonists reacted to taxes imposed on them by the British government. Students were asked questions based on their homework. If they had not done the assignment, they could copy the answers. If they had, they could correct their mistakes in their notebooks. Half the period was devoted to this type of questioning, interspersed with vocabulary building from the teacher: "Anyone know what a merchant is?" etc.

Student Achievement in Content-Area Courses

Table 5 presents the passing rates for program and mainstream students in mathematics, science, and social studies courses each semester. Statistical significance of the difference between program and mainstream students' passing rates was determined through a *z*-test for the signif-

icance of the difference between two proportions.* This procedure tests whether the difference in the rates for two independent groups is greater than can be expected by chance variation.

Examination of Table 5 reveals that the program objective was met. Differences between the passing rates of program and mainstream students were not statistically significant. Thus program students achieved passing rates essentially as high as those of mainstream students.

*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

TABLE 5

Passing Rates for Program and Mainstream Students
in Content-Area Courses

Course	Bilingual Program		Mainstream Classes		
	Number of Students	Percent Passing	Number of Students	Percent Passing	z-test Value
			FALL		
Math	100	56.0	1,104	58.2	-.43
Science	57	61.4	1,057	67.4	-.94
Social Studies	56	78.6	1,633	70.0	1.38
			SPRING		
Math	73	67.1	1,288	64.3	.48
Science	42	76.2	1,106	67.4	1.20
Social Studies	57	78.9	1,623	72.5	1.07

- Differences between the passing rates of program and mainstream students were not statistically significant and, thus, the program objective was met.

AFFECTIVE DOMAIN AND OUTSTANDING ACHIEVEMENTS

During the 1984-85 academic year 20 students left the program, including eight who were mainstreamed and seven who returned to their native lands. In 1985-86, 80 program students left the program: 36 were mainstreamed; 21 transferred to another school or program in the United States; 14 graduated; six left the United States; and three dropped out because of family or job-related reasons.

The project office also reports that tuition scholarships were awarded to eight bilingual students graduating in June 1986: two to Queensborough Community College; two to St. John's; one to York College; one to the Aeronautics Institute; one to Elizabeth Seton; and one to Andrews University.

Attendance/Suspension

-- As a result of participating in this project, students will maintain an attendance rate that is equal to or greater than the attendance rate of mainstream students.

-- As a result of participating in this project, students' suspension rate will be significantly lower than the suspension rate of the mainstream students.

Table 6 presents the attendance and suspension rates for program and mainstream students. Statistical significance of the difference between program and mainstream rates was determined through a z-test for the significance of difference between two proportions.* This procedure tests whether the difference in the rates for two independent groups is greater than can be expected by chance variation.

Examination of Table 6 reveals that there were no significant differences between the attendance and suspension rates of program and mainstream

*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

students. Thus program students met the proposed attendance objective but did not meet the objective in the area of suspension.

TABLE 6

Attendance and Suspension Rates
for Program and Mainstream Students

	Program		Mainstream		
	Number of Students	Rate	Number of Students	Rate	z-test
Attendance	154	89.2	1,727	85.7	1.2
Suspension	154	1.9	1,727	2.7	-0.6

- Attendance and suspension rates of program students were not significantly different from those of mainstream students. Thus, program students met the attendance objective but they did not do so in the area of suspension.

CURRICULUM DEVELOPMENT

The curriculum development goals set for native language arts and computer-assisted E.S.L. and mathematics were met during the program's first year of operation. A keyboarding manual for bilingual students, bilingual materials on computer literacy and business machines use, and basic skills software in E.S.L. grammar and mathematics are the major new curricula that were developed by project staff in 1985-86.

As a result of its creative use of computer technology and software, Jamaica High School has been recognized by the New York City Board of Education for its exemplary computer science program. It is also one of 22 schools throughout the U.S.A. that have been awarded 30-month grants for their entries in the APPLE Corporation's "Computers for Underserved School Populations" contest. Jamaica High School's entry was in bilingual social studies.

STAFF DEVELOPMENT

Title VII and foreign language teaching staff met monthly for the purpose of reviewing student progress, evaluating curricula, and monitoring project goals. By the end of the first year, both of the staff development goals found in the original grant proposal had been met, with the result that project staff had developed a basic knowledge of computer hardware and software and their special uses for E.S.L. pupils. In addition to these in-house activities, staff members attended five computer management and E.S.L. software workshops cosponsored by the New York Bilingual Educational Multifunctional Support Center and Teacher's College of Columbia University.

CAREER PLANNING

Jamaica High School achieved its long-term goal in vocational training and career education one year ahead of schedule. Title VII students have held job internships in neighboring offices and mailrooms, thereby applying their bilingual business skills and academic competencies.

All program students met regularly with their guidance counselor or E.S.L. coordinator for career planning assistance. Over half participated in Jamaica High School's annual college/career night, a major experience for E.S.L. pupils only recently familiar with job-search terminology.

PARENTAL INVOLVEMENT

During 1985-86, nine computer workshops for parents were organized in the fall and five in the spring. In the fall, attendance ranged from 14 to 40 parents; in the spring from 12 to 27 parents. With the formation of the New American Resource Center in February, the program organized five additional workshops centering on employment, legal, and welfare issues. Attendance at the Resource Center workshops ranged from nine to 22 parents.

Although project staff routinely informed parents of weaknesses in their children's academic preparation and solicited their cooperation when appropriate, it was difficult to attract LEP parents to after-school functions, perhaps because P.T.A.s have no counterpart in their countries of origin. However, several Title VII parents attended school for an International Night program either to watch the festivities or serve their own home-cooked specialties.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

In its second year of operation, Jamaica High School's Computer-Assisted Bilingual/Bicultural Multi-Skills Project continued to offer computerized and non-computerized instruction to 154 Spanish- and Haitian Creole/French-speaking LEP students to develop their English-language, native-language, and content-area skills.

Career-planning activities and tutoring were important complements to the project's instructional component. In addition, the project sought to encourage parental understanding and involvement as a way of reinforcing student commitment. Curriculum development and staff development activities, involving Title VII staff and foreign-language teachers, were equally vital aspects of the project.

In 1985-86, the program was generally successful in meeting its instructional and non-instructional objectives. Students actively participated in computerized instructional classes held in the project's computer resource room. For most of the students, this was their first experience using a computer terminal and they eagerly approached project and monolingual English-speaking faculty for necessary assistance. Student performance in E.S.L., native language arts, and content-area subjects met the criteria proposed. The objectives for student attendance, curriculum development, career planning, and staff development were also attained. The objective for students' suspension rates was not.

RECOMMENDATIONS

The following recommendations are offered for possible program improvement:

-- One of the strengths of the bilingual program at Jamaica High School is its carefully structured E.S.L. curriculum and rigorous instruction in Spanish and French. However, more training in E.S.L. teaching techniques is desirable for teachers of subject-area classes that are taught in English, and geared specifically for LEP students, such as E.S.L. American Studies.

-- As good as the E.S.L. component is at Jamaica, many of the classes observed by a member of the evaluation team placed little emphasis on student-centered communication. Future staff development activities might focus on using pattern drills and oral repetition which, although boring in themselves, help improve the verbal and reading skills of the students.

-- The program objective concerning students' suspension rates is unrealistic and should be changed. It is virtually impossible for the program students to have a significantly lower suspension rate than the schoolwide rate, when the school's suspension rate is 2.7 percent!